REMARKS:

This paper is herewith filed in response to the Examiner's final Office Action mailed on July 3, 2007 for the above-captioned U.S. Patent Application. This office action is a rejection of claims 1-28 of the application.

More specifically, the Examiner has objected to claims 26 and 28 under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim; and rejected claims 1-8 and 10-27 under 35 USC 103(a) as being unpatentable over Stopler (US20030043925) in view of Sutterlin. The Applicant respectfully traverses the rejections.

Regarding the objection of claims 26 and 28 under 37 CFR 1.75(c), claims 26 and 27 have been amended for clarification. The objection is seen as over come and the objection should be removed.

In regards to the rejection of claim 1 the Applicant notes claims 1, 11, and 17 have been amended for clarification. Support for the amendments can be found at least on page 9, lines 11-19. No new matter is added.

Claim 1 as amended recites:

> A method for receiving a multi-carrier signal, comprising the steps of: detecting a presence of at least one impulse interference within the signal, identifying one or more samples of said signal where a significant amount of the impulse noise caused by the at least one impulse interference is present, selecting samples to be blanked, blanking the selected samples to obtain a signal with blanking by applying a blanking window to said signal, wherein the blanking window is a non-rectangular window to provide smooth transitions at its ends, and determining an estimate of the signal with blanking; **wherein the selected samples comprise the samples identified to have impulse interference present and further comprise a first predetermined number of samples preceding the identified samples and a second predetermined number of samples following the identified samples.**

Claim 1 recites a method in which selected samples of a signal are blanked. The Applicant notes

that the selected samples include those identified as being-affected by a significant amount of impulse noise. The Applicant notes that in claim 1 the blanking window is non-rectangular to provide smooth transitions at its ends. Additionally, in claim 1 the selected samples include a first predetermined number of samples preceding the identified samples and a second predetermined number of samples following the identified samples.

In the rejection of claim 1 the Examiner states:

> "As per claims 1 and 17, Stopler et al teaches a method for receiving a multi-carrier signal, comprising the steps of: detecting a presence of at least one impulse interference within the signal, identifying one or more samples of said signal where a significant amount of the impulse noise caused by the at least one impulse interference is present (see figs. 1-2 elements 12,14 and page 2, paragraph [0016] and page 3 [0029]-[0030]); selecting samples to be blanked (see fig.1 element 16 and page 3 [0031]); blanking the selected samples to obtain a signal with blanking (see fig.1 element 18 and page 3 [0032] and page 6 [0074-0077); and determining an estimate of the signal with blanking (see figs. 1-2 elements 20 100 and page 3 [0032]); wherein the selected samples comprise the samples identified to have impulse interference present and at least one of the following: a first predetermined number of samples preceding the identified samples (see figs.1- element 68); and a second predetermined number of samples following the identified samples (see fig.1 element 72 and page 7 [0077]-[0078])."

Stopler appears to disclose a blanking method in which two techniques are used for identifying samples affected by impulse noise. The first is a Gram Schmidt process, while the second uses a moving "window" to determine whether the amplitudes of successive sets of L consecutive samples exceed a predetermined threshold.

As cited Stopler discloses:

> "Impulse blanking is performed according to the TOA of the impulse as detected by, e.g., the Moving Window detector. **The number of samples blanked corresponds to the length L of the moving window on which the impulse was detected**. More precisely, the L consecutive samples output from decimator 24 (FIG. 2) that were grouped by FIFO 60 and identified as an impulse by thresholding their energy, are zeroed by summer/blanker 66 at the input of match filter 68. Other samples (i.e., those which were not declared to be an impulse) are not altered. Various techniques may be used for canceling a detected impulse.

> Two alternate methods are preferred--a linear Least Square (LS) cancellation scheme and a Decision Feedback (DFB) cancellation scheme," (emphasis added).

The Applicant notes that the Examiner seems to equate the moving window detector in Stopler to a blanking window in claim 1. The Applicant notes that Stopler discloses that the number of samples blanked corresponds to the length L of the moving window.

Further, Stopler discloses:

> "**It will be assumed that impulses to be detected have an expected length of L.** If the detector 10 is used when impulses of indeterminate length are expected, the methods for detecting impulses of a known length L discussed below may be repeated with each possible L," (emphasis added), (par. [0038]).

For at least these reasons the Applicant contends that Stopler does not appear to disclose or suggest the blanking of selected samples which include **a predetermined number of samples preceding or following an impulse** as in claim 1.

Moreover, as conceded by the Examiner, Stopler does not envisage the provision of a weighted blanking scheme to provide gradual transitions between blanked samples and unaffected samples.

In the rejection of claim 1 the Examiner states:

> "However Stopler does not teach by applying a blanking window to said signal wherein the blanking window is linear and square waves are functionally equivalent to the claimed (non-rectangular) to provide smooth transitions at its end;"
>
> "Sutterlin et al teaches applying a blanking window to said signal wherein the blanking window is non-rectangular to provide smooth transitions at its end (see figs.1 and 3 elements 24 and 27 and col.3, lines 45-67 and col.4, lines 1-5 and col.6, lines 1-40 and col.7, lines 25-35);" and
>
> "It would have been obvious to one of ordinary skill in the art to implement the teaching of Suterlin into Stopler as to snub the noise pulse from the average or prevent it from building up the average as taught by Suterlin (see col.7, lines 40-45)."

As cited Sutterlin discloses:

> "In effect, the noise pulse that caused the blanking is snubbed from the average, preventing it from building up the average. The duration of this freezing of the average will be discussed later. The freezing of the value in register 85 is controlled by the FREEZEAVG signal on line 87 which switches the multiplexer 84 (through OR gate 88) from selecting the D0 terminal to selecting the D1 terminal," (col. 7, lines 40-45).

The Applicant notes that Sutterlin discloses an arrangement in which two methods are used to remove the effects of impulse noise. Firstly, the affected samples are identified, based on a comparison of the instantaneous values of I and Q signals with continuously updated average levels. Affected samples are then prevented from contributing to the average level and are blanked. **Samples immediately <u>following</u> the identified samples may be wholly and partially blanked** ("soft turn-on of the main signals"). In the example described in column 9, lines 15-46, **the first three samples immediately following the identified samples are blanked**, while the amplitudes of the next four samples are "halved".

The Applicant contends that Sutterlin at least fails to disclose or suggest providing smooth transitions **at a leading edge** of a predetermined number of samples **preceding** an identified sample as in claim 1. In fact, the Applicant contends that Sutterlin fails to disclose any such blanking of selected samples **preceding the impulse**. Moreover, in the rejections of the dependent claims, the Examiner appears to have confused the discarding of samples when calculating the average and the generation of I and Q signals with the blanking process.

For at least the reasons stated the Applicant contends that Sutterlin is not seen to address a shortfall of Stopler as stated above. The Applicant contends that Sutterlin at least does not disclose or suggest "**blanking the selected samples** to obtain a signal with blanking by applying a blanking window to said signal, wherein the blanking window is a non-rectangular window **to provide smooth transitions** at its ends, and [where] **the selected samples comprise [...] a first predetermined number of samples <u>preceding</u> the identified samples**,"

as in claim 1.

The Applicant contends that even if Stopler were combined with Sutterlin, for at least the reasons stated, the result would still not disclose or suggest claim 1 and the rejection should be removed.

Further, for at least the reasons stated the Applicant contends that the references cited are not seen to disclose or suggest at least where claim 11 recites in part "the selected samples including the identified samples **and further including a first predetermined number of samples preceding the identified samples**."

In addition, for at least the reasons stated the Applicant contends that the references cited are not seen to disclose or suggest at least where claim 17 recites in part "wherein the selection means are configured to select samples being identified to have impulse interference present and **further configured to select a first predetermined number of samples preceding the identified samples**."

Therefore, for at least the reasons stated the Applicant contends that the references cited are not seen to disclose or suggest all claims 1, 11, and 17. Thus, the rejection of these claims should be removed.

Regarding the rejection of dependent claims 2, 6, 14, and 20, the Applicant contends that for at least the reasons already stated above, neither Stopler nor Sutterlin is seen to disclose the blanking of preceding samples.

Therefore, for at least these reasons stated the references cited are not seen to disclose or suggest at least where claim 2 recites in part "wherein **the first predetermined number** of samples is equal to the second predetermined number."

Further, for at least the reasons stated the references cited are not seen to disclose or suggest at least where claim 6 recites in part "wherein the selected blanking window is positioned in

relation to the samples in a time domain **so that at least one sample preceding the identified samples** is within the blanking window."

In addition, for at least the reasons stated the references cited are not seen to disclose or suggest at least where claim 14 recites in part "configured to position the selected blanking window in relation to the samples in a time domain **so that at least one sample preceding the identified samples is within the blanking window**."

Further, for at least the reasons stated the references cited are not seen to disclose or suggest at least where claim 20 recites in part "to position the selected blanking window in relation to the samples in a time domain **so that at least one sample preceding the identified samples is within the blanking window**."

Regarding claims 3, 5, 12, 13, 18 and 19, the Applicant notes that Stopler does not disclose or suggest a selection of the length of the blanking window from a plurality of predetermined lengths. Instead, Stopler discloses that the number of samples blanked corresponds to the length of the moving window used for impulse detection (par. [0077]). In addition, the Applicant contends that here there is no disclosure of the use of composite windows as in claims 7, 8, 15 and 21. For at least the reasons stated the references cited are not seen to disclose or suggest these claims and the rejections should be removed.

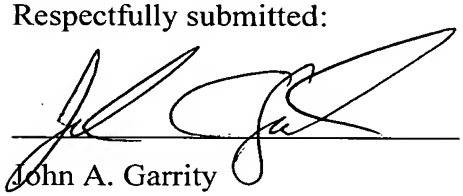
Further, it is also noted that the rejections of claims 23 to 28, which presumably relate to Sutterlin rather than Stopler, and are not well founded. Instead of defining transitions of the blanking window, as related to by claims 23 to 28, the elements 19, 27 identified by the Examiner are a multiplier circuit 19, for use in generating an I signal from the input signal, and the blanking circuit itself. The first cited passage, column 7, lines 25 to 67, relates to gradual adjustment of the average level used to detect impulse noise in the I and Q signals, rather than gradual transitions at the ends of the blanking window, while the other passage (presumably column 3, lines 36 to 37) relates to the multiplier circuit 19 and the generation of the I signal. For at least this reason the Applicant contends that the rejection is improper and the rejection should be removed.

In addition, as the claims 2-8, 10, 16, 23-24, and 26; claims 12-15, and 25; and claims 18-22 and 27 depend from claims 1, 11, and 17 respectively, the references cited are not seen to disclose or suggest these claims, and all the claims 1-8, and 10-27 should be allowed.

Based on the above explanations and arguments, it is clear that the references cited cannot be seen to disclose or suggest claims 1-8, and 10-27. The Examiner is respectfully requested to reconsider and remove the rejections of claims 1-8, and 10-27 and to allow all of the pending claims 1-8 and 10-27 as now presented for examination.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record. Should any unresolved issue remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

Respectfully submitted:



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